

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-023962**Date Inspected:** 24-May-2011**Project Name:** SAS Superstructure**OSM Arrival Time:** 700**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1630**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** Pat Swain**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower**Summary of Items Observed:**

This Quality Assurance (QA) Inspector, Craig Hager was on site at the job site between the times noted above.

This QA Inspector was on site to randomly observe Quality Control (QC) personnel perform Non-Destructive Testing (NDT) and monitor American Bridge/Fluor (ABF) welding operations. This Quality Assurance (QA) Inspector, Craig Hager observed the following.

This QA Inspector observed ABF personnel working at the 9 meter level in an effort to weld the external diaphragm plates to the various shear plates and tower skin plates. This QA Inspector observed the following during the shift noted above.

This QA Inspector observed ABF personnel were in the process of setting up the induction preheating equipment at weld joints #55 and #56 at approximately 0730 hours. The induction heating blankets were placed at the center section of each weld joint. At approximately 0900 hours QC Inspector Pat Swain informed this QA Inspector the minimum preheat temperature of 225°F had been obtained. This QA Inspector verified the preheat temperature using an electronic temperature gauge.

This QA Inspector observed ABF welding personnel Xiao Jian Wan (#9677) and Quan Huang (#9340) were setting up the Flux Cored Arc Welding (FCAW) equipment to begin welding on weld joint #56.

This QA Inspector observed ABF welding personnel Wai Kitlai (#2953) was setting up FCAW equipment to begin welding on weld joint #55.

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At approximately 0945 hours FCAW began at both weld joints. This QA Inspector observed as QC Inspector verified the following welding parameters; Xiao Jian Wan (#9677) – 280 amperes and 23.7 volts at a travel speed of 345 mm per minute to produce a heat input of 1.15 Kj per mm, Quan Huang (#9340)- 285 amperes and 24.2 volts at a travel speed of 374 mm per minute to produce a heat input of 1.10 Kj per mm and Wai Kitlai (#2953)- 290 amperes and 24.6 volts at a travel speed of 402 mm per minute to produce a heat input of 1.06 Kj per mm. These parameters appeared to comply with Welding Procedure Specification (WPS) ABF-WPS-D15-3160-1.

This QA Inspector observed QC Inspector Pat Swain periodically monitor the preheat and welding parameters.

This QA Inspector randomly observed ABF welding personnel Wai Kitlai (#2953) welded the center section, approximately 1210 mm in length.

This QA Inspector randomly observed ABF welding personnel Xiao Jian Wan (#9677) and Quan Huang (#9340) welded the center section, approximately 1800 mm in length, and one at each end.

This QA Inspector observed both weld joints appeared to be completed by the end of welding at approximately 1100 hours this date.

This QA Inspector observed the induction heat blankets were placed over the welds at approximately 1230 hours this date for the 3 hour post weld heating.

This QA Inspector observed ABF welding personnel Rory Hogan (#3186), Jeremy Dolman (#5042) and others setting up the Electro Slag Welding (ESW) equipment on the deck at the 13 meter elevation. This QA Inspector observed ABF welding personnel Rory Hogan (#3186) and Jeremy Dolman (#5042) were in the process of fitting up and welding various brackets for ladders and equipment at elevations 3, 9 and 13 in preparation to start the ESW. This QA Inspector observed the ladders and channels appeared to be set up on the West side of the weld joint identified as S-045. Both welding personnel stated ESW would not be started this date when asked by this QA Inspector. See various photos of ESW set up below.

Summary of Conversations:

This QA Inspector had general conversations with American Bridge/Fluor (ABF) and Caltrans personnel during this shift. Except as described above and noted below there were no notable conversations.

This QA Inspector had a conversation with QCM Jim Bowers and was informed of the following:

The weld joints had been given new identifications using location and the PQR reference number (S-045, S=South and 045 is the applicable PQR for that joint).

QC personnel will be given a booklet with a check off list for both QC and production personnel, the applicable WPS and a weld identification map.

The first ESW weld will be S-045.

The fit up of the Tee joints, such as S-045, will consist of documenting rather the root gap was within the tolerance

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provided on the WPS (16 mm to 25 mm) and that the actual gap will not be recorded.

This QA Inspector observed the preheat temperature on the WPS was to be greater than the atmospheric dew point and asked QCM Jim Bowers how this would be verified. QCM Jim Bowers stated he would use the Internet to access the dew point temperature of both Oakland, CA and San Francisco, CA using the average and compare that to the ambient average temperature. If the ambient temperature was greater than the dew point temperature then he would consider it acceptable to weld.

This QA Inspector informed Lead QA Inspector Bill Levell and/or Robert Mertz of this conversation.



Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Hager,Craig	Quality Assurance Inspector
Reviewed By:	Levell,Bill	QA Reviewer
